



NB1-63DC DC Circuit Breaker

1. General

- 1.1 Certificates: CCC,CE,CB,TUV;
- 1.2 Standard: IEC/EN 60947-2 ,RoHS;
- 1.3 Rated voltage up to 1000V, Rated current up to 63A;
- 1.4 Protection of circuits against overload currents;
- 1.5 Protection of circuits against short-circuit currents;

2. Features

- 2.1 Excellent breaking capacity
- 2.2 Double connection function of lead wire and bus bar
- 2.3 Stored energy operation, fast closing, long service life
- 2.4 Convenient installation, disassembly
- 2.5 Contact on-off indication, higher security
- 2.6 Green environmental protection and energy saving

3. Operating conditions

- 3.1 Ambient temperature: $-35^{\circ}\text{C} \sim +70^{\circ}\text{C}$ (Refer to 5.3)
- 3.2 The atmosphere condition: $\leq 95\%$
- 3.3 Pollution degree: III
- 3.4 Altitude: $\leq 2000\text{m}$ (if exceed 2000m, Refer to 5.4)

4. Technical data

4.1 Classification

- 4.1.1 Rate Current I_n :
1A, 2A, 3A, 4A, 6A, 10A, 13A, 16A, 20A, 25A, 32A, 40A, 50A, 63A
- 4.1.2 Number of poles: 1P, 2P, 4P
- 4.1.3 Tripping curves: C Type, (7~10) I_n
- 4.1.4 Weight(kg) : 0.12/per pole.

4.2 Parameters

- 4.2.1 Rated breaking capacity I_{cu}

Rated current I_n (A)	Number of poles	Rated voltage U_e (V)	Rated breaking capacity I_{cu} (A)
1~63	1	250	6000
	2	500	6000
	4	1000	6000

4.2.2 Electrical and mechanical life

a. Electrical life: 1500 cycles

b. Mechanical life: 20,000 cycles

5.2.3 Rated impulse withstand voltage U_{imp} :4KV

5.2.4 (28-32)°C ambient temperature over-current protection features.

Test	Test current	Initial state	Time limit for tripping or not tripping	Expected result	Remarks
a	1.05 I_n	Cold state	$t \leq 1h$	Not tripping	
b	1.30 I_n	Right after test number a	$t \leq 1h$	Tripping	The current is rising within 5s
c	7 I_n	Cold state	$t \leq 0.2s$	Not tripping	
d	10 I_n	Cold state	$t < 0.2s$	Tripping	

Note: The terminology "Cold state" means that the test is performed at the base calibration temperature with no load prior to the test.

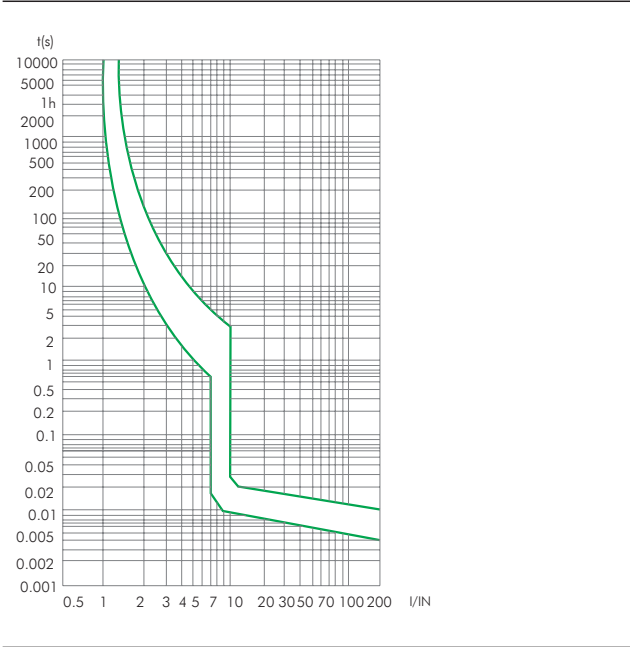
4.3 Temperature derating

Rated current (A)	Temperature compensation coefficient under various operational temperature.											
	-35°C	-30°C	-20°C	-10°C	0°C	10°C	20°C	30°C	40°C	50°C	60°C	70°C
1	1.3	1.26	1.23	1.19	1.15	1.11	1.05	1	0.96	0.93	0.88	0.83
2	2.6	2.52	2.46	2.38	2.28	2.2	2.08	2	1.92	1.86	1.76	1.66
3	3.9	3.78	3.69	3.57	3.42	3.3	3.12	3	2.88	2.79	2.64	2.49
4	5.2	5.04	4.92	4.76	4.56	4.4	4.16	4	3.84	3.76	3.52	3.32
6	7.8	7.56	7.38	7.14	6.84	6.6	6.24	6	5.76	5.64	5.28	4.98
10	13.2	12.7	12.5	12	11.5	11.1	10.6	10	9.6	9.3	8.9	8.4
13	17.16	16.51	16.25	15.6	14.95	14.43	13.78	13	12.48	12.09	11.57	10.92
16	21.12	20.48	20	19.2	18.4	17.76	16.96	16	15.36	14.88	14.24	13.44
20	26.4	25.6	25	24	23	22.2	21.2	20	19.2	18.6	17.8	16.8
25	33	32	31.25	30	28.75	27.75	26.5	25	24	23.25	22.25	21
32	42.56	41.28	40	38.72	37.12	35.52	33.93	32	30.72	29.76	28.16	26.88
40	53.2	51.2	50	48	46.4	44.8	42.4	40	38.4	37.2	35.6	33.6
50	67	65.5	63	60.5	58	56	53	50	48	46.5	44	41.5
63	83.79	81.9	80.01	76.86	73.71	70.56	66.78	63	60.48	58.9	55.44	52.29

4.4 Altitude derating

Tripping type	Rated current I_n (A)	Current correction factor			For example
		≤ 2000	2000~3000m	$\geq 3000m$	
C	1,2,3,4,6,10, 13,16,20,32, 40,50,63	1	0.9	0.8	Rated current of 10A products rated current derating 2500m: $0.9 \times 10 = 9A$

4.5 Curves shown in Figure 1



4.6 Wiring: Apply to 25 mm² wire connection terminals

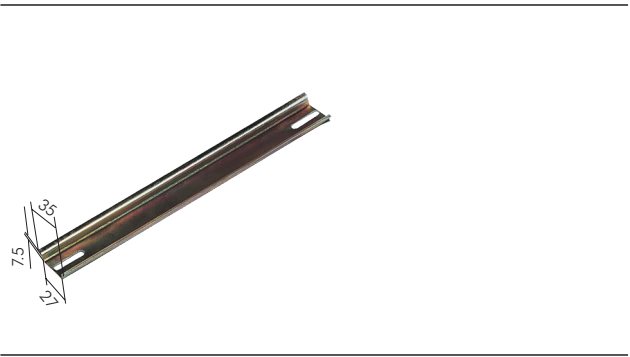
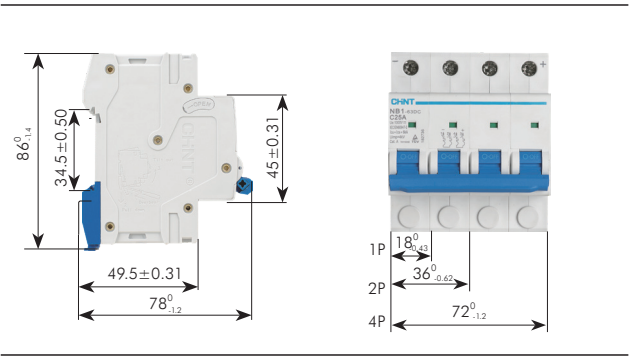
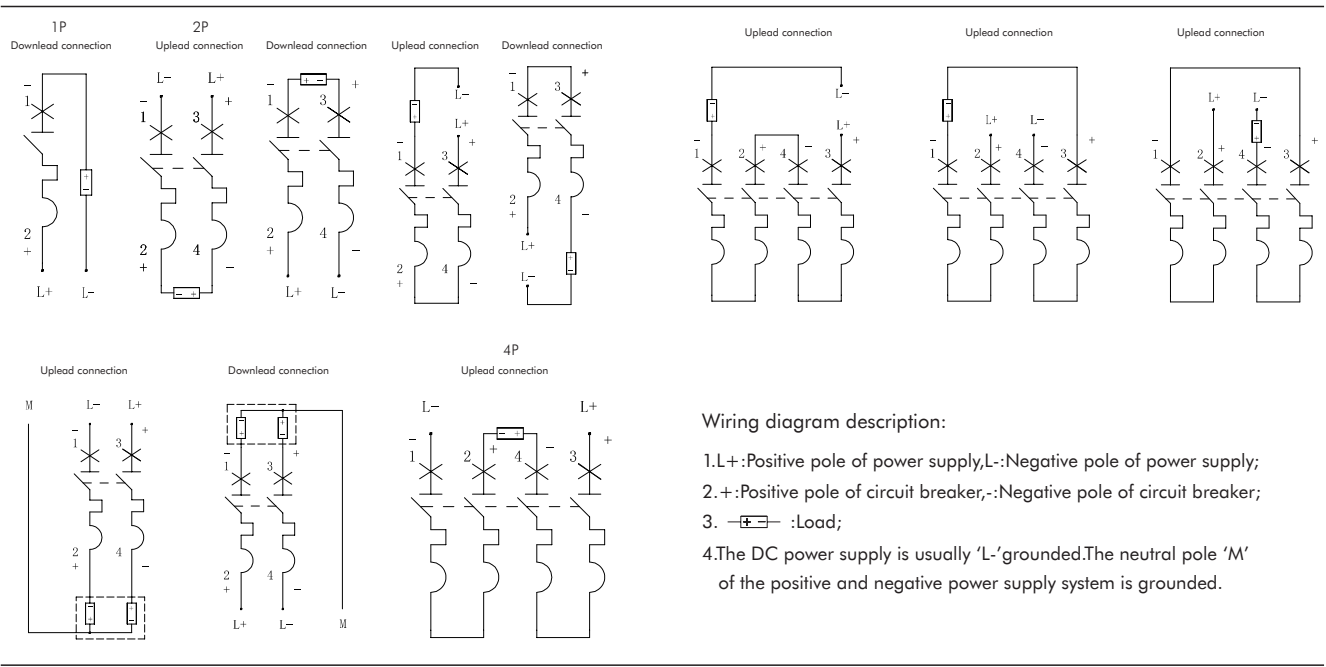
Tightening torque 2N·m

Rated current In (A)	Copper wire nominal cross sectional area(mm²)
1~6	1
10,13	1.5
16,20	2.5
25	4
32	6
40,50	10
63	16

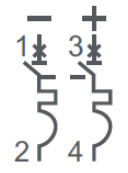
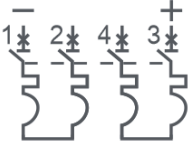
4.7 Each pole power consumption of the circuit breaker

Rated current In (A)	Each pole maximum power consumption(W)
In≤10A	3
10< In≤16A	3.5
16< In≤25A	4.5
25< In≤32A	6
32< In≤40A	7.5
40< In≤50A	9
50< In≤63A	13

4.8 DC application wiring diagram shown in Figure 2



NB1-63DC	1P	C	1A	DC250V	6kA
↓	↓	↓	↓	↓	↓
Frame	Poles	Curve	Current(In)	Ue(V)	Breaking capacity
NB1-63DC	1P 2P 4P	C	1A~63A	DC250V DC500V DC1000V	6kA

Diagram	Curve	Poles	In(A)	Icu(kA)	Ue(V)	Description	Code
	C	1P	1	6	DC250	NB1-63DC 1P C1A DC250V 6kA	182699
	C	1P	2	6	DC250	NB1-63DC 1P C2A DC250V 6kA	182700
	C	1P	3	6	DC250	NB1-63DC 1P C3A DC250V 6kA	182701
	C	1P	4	6	DC250	NB1-63DC 1P C4A DC250V 6kA	182702
	C	1P	6	6	DC250	NB1-63DC 1P C6A DC250V 6kA	182703
	C	1P	10	6	DC250	NB1-63DC 1P C10A DC250V 6kA	182704
	C	1P	13	6	DC250	NB1-63DC 1P C13A DC250V 6kA	182705
	C	1P	16	6	DC250	NB1-63DC 1P C16A DC250V 6kA	182706
	C	1P	20	6	DC250	NB1-63DC 1P C20A DC250V 6kA	182707
	C	1P	25	6	DC250	NB1-63DC 1P C25A DC250V 6kA	182708
	C	1P	32	6	DC250	NB1-63DC 1P C32A DC250V 6kA	182709
	C	1P	40	6	DC250	NB1-63DC 1P C40A DC250V 6kA	182710
	C	1P	50	6	DC250	NB1-63DC 1P C50A DC250V 6kA	182711
	C	1P	63	6	DC250	NB1-63DC 1P C63A DC250V 6kA	182712
	C	2P	1	6	DC500	NB1-63DC 2P C1A DC500V 6kA	182713
	C	2P	2	6	DC500	NB1-63DC 2P C2A DC500V 6kA	182714
	C	2P	3	6	DC500	NB1-63DC 2P C3A DC500V 6kA	182715
	C	2P	4	6	DC500	NB1-63DC 2P C4A DC500V 6kA	182716
	C	2P	6	6	DC500	NB1-63DC 2P C6A DC500V 6kA	182717
	C	2P	10	6	DC500	NB1-63DC 2P C10A DC500V 6kA	182718
	C	2P	13	6	DC500	NB1-63DC 2P C13A DC500V 6kA	182719
	C	2P	16	6	DC500	NB1-63DC 2P C16A DC500V 6kA	182720
	C	2P	20	6	DC500	NB1-63DC 2P C20A DC500V 6kA	182721
	C	2P	25	6	DC500	NB1-63DC 2P C25A DC500V 6kA	182722
	C	2P	32	6	DC500	NB1-63DC 2P C32A DC500V 6kA	182723
	C	2P	40	6	DC500	NB1-63DC 2P C40A DC500V 6kA	182724
	C	2P	50	6	DC500	NB1-63DC 2P C50A DC500V 6kA	182725
	C	2P	63	6	DC500	NB1-63DC 2P C63A DC500V 6kA	182726
	C	4P	1	6	DC1000	NB1-63DC 4P C1A DC1000V 6kA	182727
	C	4P	2	6	DC1000	NB1-63DC 4P C2A DC1000V 6kA	182728
	C	4P	3	6	DC1000	NB1-63DC 4P C3A DC1000V 6kA	182729
	C	4P	4	6	DC1000	NB1-63DC 4P C4A DC1000V 6kA	182730
	C	4P	6	6	DC1000	NB1-63DC 4P C6A DC1000V 6kA	182731
	C	4P	10	6	DC1000	NB1-63DC 4P C10A DC1000V 6kA	182732
	C	4P	13	6	DC1000	NB1-63DC 4P C13A DC1000V 6kA	182733
	C	4P	10	6	DC1000	NB1-63DC 4P C10A DC1000V 6kA	182732
	C	4P	13	6	DC1000	NB1-63DC 4P C13A DC1000V 6kA	182733
	C	4P	10	6	DC1000	NB1-63DC 4P C10A DC1000V 6kA	182732
	C	4P	13	6	DC1000	NB1-63DC 4P C13A DC1000V 6kA	182733
	C	4P	10	6	DC1000	NB1-63DC 4P C10A DC1000V 6kA	182732
	C	4P	13	6	DC1000	NB1-63DC 4P C13A DC1000V 6kA	182733
	C	4P	10	6	DC1000	NB1-63DC 4P C10A DC1000V 6kA	182732
	C	4P	63	6	DC1000	NB1-63DC 4P C63A DC1000V 6kA	182740